JOURNAL OF Colloid and Interface Science

EDITOR

Milton Kerker

ASSOCIATE EDITOR

Josip P. Kratohvil

Clarkson University
Potsdam, New York

ADVISORY BOARD

J. D. Andrade
Salt Lake City, Utah

E. A. Boucher
Brighton, England

J. L. Brash
Ontario, Canada

B. Chu
Stony Brook, New York

P. G. de Gennes
Paris, France

F. J. Holly
Lubbock, Texas

N. Ise
Kyoto, Japan

D. H. Kaelble
Thousand Oaks, California

M. Kahlweit
Göttingen, West Germany

E. A. Lissi
Santiago, Chile

A. Marmur
Haifa, Israel

R. S. Porter
Amherst, Massachusetts

V. Pravdić
Zagreb, Yugoslavia

R. Rajagopalan
Houston, Texas

E. D. Shchukin
Moscow, USSR

J. K. Thomas
Notre Dame, Indiana

P. Wagner
Vienna, Austria

W. R. Wilcox
Potsdam, New York

Victor K. La Mer, Founding Editor

A. C. Zettlemoyer, Editor Emeritus

Volume 121

1988

ACADEMIC PRESS, INC.

Harcourt Brace Jovanovich, Publishers

San Diego New York Boston
London Sydney Tokyo Toronto

Copyright © 1988 by Academic Press, Inc.
All rights reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1988 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0021-9797/88 $3.00

MADE IN THE UNITED STATES OF AMERICA

Contents of Volume 121

NUMBER 1, JANUARY 1988

ROGER K. SANDWICK AND KEITH J. SCHRAY. Conformational States of Enzymes Bound to Surfaces 1

D. J. CHAIKO AND K. OSSEO-ASARE. Desorption of Benzophenone Oxime Monolayers at the Air/Water Interface 13

KEVIN T. HODGSON AND JOHN C. BERG. The Effect of Surfactants on Wicking Flow in Fiber Networks 22

TONG KUAN WANG AND ROLAND AUDEBERT. Adsorption of Cationic Copolymers of Acrylamide at the Silica–Water Interface: Hydrodynamic Layer Thickness Measurements 32

ALIDA D. ANGELI, ANTONIO CIPICIANI, RAIMONDO GERMANI, GIANFRANCO SAVELLI, GIORGIO CERICHELLI, AND CLIFFORD A. BUNTON. Hydration of *p*-Alkyloxy-α-α-α-trifluoroacetophenone and Water Activity at a Micellar Surface 42

L. K. KOOPAL, V. HLADY, AND J. LYKLEMA. Electrophoretic Study of Polymer Adsorption: Dextran, Polyethylene Oxide and Polyvinyl Alcohol on Silver Iodide 49

JONATHAN P. BLITZ, R. S. SHREEDHARA MURTHY, AND DONALD E. LEYDEN. Studies of Silylation of Cab-O-Sil with Methoxymethylsilanes by Diffuse Reflectance FTIR Spectroscopy 63

PAUL MULVANEY, LYNETTE DENISON, FRANZ GRIESER, RONALD COOPER, JOHN V. SANDERS, AND DAN MEISEL. Radiation-Induced Dissolution of Colloidal Manganese Oxides 70

W. BINANA-LIMBELÉ AND R. ZANA. Effect of Temperature on the Aggregation Behavior of the Nonionic Surfactant $C_{12}E_8$ in H_2O and D_2O Solutions 81

N. PRABHAKARA RAO AND RONALD E. VERRALL. Ultrasonic Velocity and Adiabatic Compressibility Properties of Quaternary Systems Containing 2-Butoxyethanol, Surfactant, Water, and Oil 85

DIMO PLATIKANOV, MIKHAIL NEDYALKOV, ALEXEI SCHELUDKO, AND BORISLAV V. TOSHEV. On the Curvature Dependence of the Film Tension of Newton Black Films 100

THELMA M. HERRINGTON AND SARABJIT S. SAHI. Temperature Dependence of the Micellar Aggregation Number of *n*-Dodecylpolyethyleneoxide Surfactants 107

FRANCISCO RODRIGUEZ AND RUSSELL MESLER. The Penetration of Drop-Formed Vortex Rings into Pools of Liquid 121

MASAMI KAWAGUCHI, AKIO FUNAYAMA, SHIN-ICHI YAMAUCHI, AKIRA TAKAHASHI, AND TADAYA KATO. Adsorption of Ethylene–Vinyl Acetate Copolymer on Silica Surfaces II 130

DAVID C. CLARK, LINDA J. SMITH, AND DAVID R. WILSON. A Spectroscopic Study of the Conformational Properties of Foamed Bovine Serum Albumin 136

E. KOLEHMAINEN AND R. LAATIKAINEN. Solubilization of Aromatics in Aqueous Bile Salts. III. Thermodynamic Model for Solubilization of Benzene in Sodium Cholate Based on ^{1}H NMR Chemical Shifts 148

FRANKLIN T. DODGE. The Spreading of Liquid Droplets on Solid Surfaces 154

KEIZO OGINO, YUKIHIRO KANEKO, TOMOYASU MINOURA, WATARU AGUI, AND MASAHIKO ABE. Removal of Humic Substance Dissolved in Water I 161

HUGO K. CHRISTENSON. Adhesion between Surfaces in Undersaturated Vapors—A Reexamination of the Influence of Meniscus Curvature and Surface Forces 170

MICHAEL H. PETERS. Adsorption of Interacting Brownian Particles onto Surfaces. I. General Formulation of the Macroscopic Diffusion Equation and Results for Nonhydrodynamic Force Interactions 179

B. A. CUNNINGHAM, W. TAMURA-LIS, L. J. LIS, AND P. J. QUINN. Time-Resolved X-Ray Diffraction Measurements of Phosphatidylcholine–Phosphatidylethanolamine Mixtures: Effect of Phosphatidylethanolamine Acyl Chain Length 193

MIREILLE PRIVAT, RENÉ BENNES, EMMANUEL TRONEL-PEYROZ, AND JEAN-MARC DOUILLARD. Ellipsometry and Adsorption: The Determination of Isotherms and the Adsorbed Layer Thickness and Fluctuations of the Composition in the Liquid–Vapor Interface 198

SUNIL DASGUPTA. Degree and Stability of Magnetic Dispersions: Sedimentation, Rheological, and Magnetic Properties ... 208

J. A. ROBERT VAN VEEN. A Method for the Quantitative Determination of the Basic Hydroxyl Groups on an Alumina Surface ... 214

JIH-FEN KUO AND TEH FU YEN. Some Aspects in Predicting the Point of Zero Charge of a Composite Oxide System ... 220

GUY BARNOCKY AND ROBERT H. DAVIS. The Effect of Maxwell Slip on the Aerodynamic Collision and Rebound of Spherical Particles ... 226

CARL-GUSTAF GÖLANDER AND EVA KISS. Protein Adsorption on Functionalized and ESCA-Characterized Polymer Films Studied by Ellipsometry ... 240

F. MILINAZZO AND MARVIN SHINBROT. A Numerical Study of a Drop on a Vertical Wall ... 254

G. GIROD, J. M. LAMARCHE, AND A. FOISSY. Adsorption of Partially Hydrolyzed Polyacrylamides on Titanium Dioxide ... 265

R. J. MIKULA. Chemical Characterization of an Oil/Water Emulsion Interface via Electron Microscope Observation of a Frozen Hydrated Sample ... 273

L. GHOSH, K. P. DAS, AND D. K. CHATTORAJ. Thermodynamics of Adsorption of Inorganic Electrolytes at Air/Water and Oil/Water Interfaces ... 278

AMBJÖRG HOCHAPFEL, MONIQUE BOIDART, AND MICHEL LAURENT. Micropolarities at Implantation Sites of 4-Dimethylamino-4′-nitroazobenzene and Phaeophytin a in Nematic Lyophases 289

LETTER TO THE EDITOR

HIROTAKA HIRATA AND YUKO SAKAIGUCHI. Low-Angle X-Ray Diffractions Observed in Highly Viscoelastic Solutions of Cationic Surfactant–Aromatic Additive Systems ... 300

NUMBER 2, FEBRUARY 1988

WEN HWA HWU, JIN SHENG SHEU, AND JER RU MAA. Adsorption and Nucleation of Water Vapor on Smooth Solid Substrates ... 303

JARL B. ROSENHOLM AND LEIF LAAKSONEN. Partial Molar Enthalpies of the Components of a Quaternary Water/Oil Microemulsion System ... 309

TADAOMI INOUE, HISAO OHUCHI, MINORU SASAKI, AND TATSUYA YASUNAGA. Kinetics of Growth Dissolution at Kink Sites Existing on $CaCO_3$ Crystals Using the Pressure-Jump Technique 339

J. JEDNAČAK-BIŠĆAN, V. PRAVDIĆ, AND W. HALLER. Adsorption Phenomena on Glass Surfaces. IV. Surface Acidity of Silica and Glasses ... 345

M. L. AGRAWAL AND RONALD D. NEUMAN. Surface Diffusion in Monomolecular Films. I. Lateral Profile Shift in Radiotracer Method ... 355

M. L. AGRAWAL AND RONALD D. NEUMAN. Surface Diffusion in Monomolecular Films. II. Experiment and Theory ... 366

M. PERDERISET, P. BAILLIF, AND M. C. JAURAND. Chemical Analysis and Photoelectron Spectroscopy of the Adsorption of Macromolecules on the Surface of Attapulgite ... 381

T. C. RANSOHOFF AND C. J. RADKE. Laminar Flow of a Wetting Liquid along the Corners of a Predominantly Gas-Occupied Noncircular Pore ... 392

R. W. O'BRIEN AND D. N. WARD. The Electrophoresis of a Spheroid with a Thin Double Layer 402

CHRISTER ELVINGSON AND STAFFAN WALL. Equilibrium and Kinetic Properties of Alkylpyridinium Sulfate Micelles ... 414

FRANCIS CONRAD AND MICHEL COURNIL. Multiplicity and Stability Analysis in a Free Boundary Problem Arising from a Dissolution-Growth Process ... 426

SHOICHI IKEDA AND HIDESHI OKUDA. Preferential Adsorption of Ions on Aqueous Surfaces of Mixed Solution of Mono-monovalent and Multi-multivalent Strong Electrolytes ... 440

MAXWELL RAUPACH AND LESLIE JOSEPH JANIK. Polarized Infrared Study of Anilinium–Vermiculite Intercalate. I. Spectra and Models ... 449

MAXWELL RAUPACH. Polarized Infrared Study of Anilinium–Vermiculite Intercalate. II. Frequency Shifts and Dipole Interactions 466

MAXWELL RAUPACH. Infrared Band Frequency Shifts and Dipole Interactions at Surfaces of Inorganic and Organic Clay Intercalates 476

DOUGLAS HENDERSON. An Explicit Expression for the Solvent Contribution to the Force between Colloidal Particles Using a Hard Sphere Model 486

A. BARRAUD, M. FLÖRSHEIMER, H. MÖHWALD, J. RICHARD, A. RUAUDEL-TEIXIER, AND M. VANDEVYVER. Morphology and Crystalline Nature of a Langmuir–Blodgett Film of a TCNQ Charge Transfer Salt 491

P. JOHN FEENEY, ERIK GEISSLER, ROBERT G. GILBERT, AND DONALD H. NAPPER. SANS Study of Particle Nucleation in Emulsion Polymerization 508

B. GALLOT, L. GERMANAUD, Y. CHEVALIER, AND P. LE PERCHEC. Mesomorphic Structure of Neutral Amphiphilic Phosphotobetaines Having Different Interionic Distances. I. Ethylphosphonatobetaines 514

B. GALLOT, L. GERMANAUD, Y. CHEVALIER, AND P. LE PERCHEC. Mesomorphic Structure of Neutral Amphiphilic Phosphotobetaines Having Different Interionic Distances. II. Phenylphosphinatobetaines 522

ALEXANDER ORON, CHAIM GUTFINGER, AND SAMUEL HASSID. Turbulent Deposition of Charged Particles under the Influence of an External Electric Field 531

JU-NAN KAO, YONGAN WANG, ROBERT PFEFFER, AND SHELDON WEINBAUM. A Theoretical Model for Nuclepore Filters Including Hydrodynamic and Molecular Wall Interaction Effects 543

JACQUES VAN WONTERGHEM, STEEN MØRUP, STUART W. CHARLES, AND STEPHEN WELLS. An Investigation of the Chemical Reactions Leading to the Formation of Ultrafine Amorphous $Fe_{100-x}C_x$ Alloy Particles 558

C. C. HO AND S. L. CH'NG. Effect of Serum, Solvent, and Detergent on Antibody Immobilized on Polymeric Substrates and Its Influence on Antigen–Antibody Interaction 564

XI-JING FAN, PER STENIUS, NIKOLA KALLAY, AND EGON MATIJEVIĆ. Precipitation of Surfactant Salts. II. The Effect of Nonionic Surfactants on Precipitation of Calcium Dodecyl Sulfate 571

VISSARION KIM, ROLF HILFIKER, AND HANS-FRIEDRICH EICKE. Excess Adsorption of Hydrocarbons on the Oil/Water Interface in H_2O/AOT/Oil Microemulsions in the Presence of Additives 579

MASAMI KAWAGUCHI, CHIKARA SUZUKI, AND AKIRA TAKAHASHI. Hydrodynamic Thicknesses of Polyethylene Oxides Adsorbed in Porous Media under Poor Solvent Conditions 585

RANJANI V. SIRIWARDANE. Effect of Alkali and Alkali Halides on the Interaction of SO_2 with CaO 590

NOTE

MASA-AKI KAKIMOTO, ATSUSHI MORIKAWA, YASUNARI NISHIKATA, MASA-AKI SUZUKI, AND YOSHIO IMAI. Measurement of the Long Alkyl Chain Tilting Angle of Langmuir–Blodgett Films of Polyamic Acid Alkylamine Salts 599

AUTHOR INDEX FOR VOLUME 121 602

The Subject Index for Volume 121 will appear in the December 1988 issue as part of a cumulative index for the year 1988.